

Application No.: 10/804,503
Docket No.: PE0673USCIP1

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Listing of Claims

1. (Canceled).
2. (Currently Amended). A composition comprising an aqueous dispersion of an electrically conductive organic polymer doped with a polymeric acid and a plurality of nanoparticles ~~composition~~ wherein said electrically conductive organic polymer is selected from combinations of any two or more of polyanilines, polythiophenes and polypyrroles.
3. (Previously Presented). A composition according to Claim 2, wherein the pH is adjusted to between 1 and 8.
4. (Previously Presented). A composition according to Claim 2, wherein said nanoparticles are inorganic nanoparticles.
5. (Previously Presented). A composition according to Claim 4, wherein said inorganic nanoparticles are selected from silica, alumina, semiconductive inorganic oxide particles, insulating inorganic oxide particles, piezoelectric oxide nano-particles, pyroelectric oxide nano-particles, ferroelectric oxide nano-particles, photoconductive oxide nanoparticles, electrically conductive metal oxides, electrically conductive metal nanowires, and electrically conductive metal nanoparticles.
6. (Previously Presented). A composition according to Claim 2, wherein said nanoparticles are organic nanoparticles.
7. (Original). A composition according to Claim 6, wherein said organic nanoparticles are selected from colloid-forming polymeric acids, carbon nanotubes, carbon nano-particles, graphitized carbon nano-particles, graphitized carbon nano-fibers, piezoelectric polymers, pyroelectric polymers, ferroelectric polymers, and photoconductive polymers.
8. (Original). A composition according to Claim 7, wherein said colloid-forming polymeric acid is a perfluoroethylene sulfonic acid.
9. (Previously Presented). A composition according to Claim 2, wherein said nanoparticles have a particle size less than about 500 nm.
10. (Previously Presented). A composition according to Claim 2, wherein said nanoparticles have a particle size less than about 250 nm.
11. (Previously Presented). A composition according to Claim 2, wherein said nanoparticles have a particle size less than about 50 nm.

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12. (Original). A composition according to Claim 5, wherein the weight ratio of silica:electrically conductive polymer is about 4:1.

13. (Currently Amended). A composition according to Claim 5, wherein the nanoparticle is an electrically semiconductive oxide, and a weight ratio of electrically semiconductive oxide to electrically conductive polymer is about 1.5 to 1.

14. (Currently Amended). A buffer layer comprising a composition comprising an aqueous dispersion of an electrically conductive organic polymer doped with a polymeric acid and a plurality of nanoparticles wherein said electrically conductive organic polymer is selected from combinations of two or more of polyanilines, polythiophenes and polypyrroles.

15. (Canceled).

16. (Previously Presented). A buffer layer according to Claim 14, wherein said electrically conductive polymer is a combination of PANi/PAAMPSA, PANi/PSSA, PEDT/PSSA, PEDT/PAAMPSA, PPy/PSSA, and PPy/PAAMPSA, respectively.

17. (Original). A buffer layer according to Claim 14, wherein said nanoparticles are inorganic nanoparticles.

18. (Original). A buffer layer according to Claim 14, wherein said inorganic nanoparticles are selected from silica, alumina, and electrically semiconductive metal oxides.

19. (Original). A buffer layer according to Claim 14, wherein said nanoparticles are organic nanoparticles.

20. (Currently Amended). A buffer layer according to Claim 14, wherein said organic nanoparticles are selected from colloid-forming polymeric sulfonic acids, colloid-forming polymeric acrylic acids, colloid-forming polymeric phosphonic acids, and colloid-forming polymeric phosphoric acids.

21. (Original). A buffer layer according to claim 14 wherein said organic nanoparticles comprise perfluoroethylenesulfonic acid.

22. (Previously Presented). A buffer layer according to claim 14 made from an aqueous dispersion comprising poly(3,4-thylenedioxythiophene) and polymeric perfluoroethylenesulfonic acid, wherein the aqueous dispersion has a pH greater than 2 and an equivalent ratio of polymeric perfluoroethylenesulfonic acid to poly(3,4-thylenedioxythiophene) greater than 0.1.

23. (Original). A buffer layer according to Claim 14, wherein said layer has a conductivity of less than about 1×10^{-3} S/cm.

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24. (Original). A buffer layer according to Claim 14, wherein said layer has a conductivity of less than about 1×10^{-5} S/cm.

25. (Previously Presented). An organic electronic device comprising a buffer layer comprising a composition comprising an aqueous dispersion of an electrically conductive organic polymer doped with a polymeric acid and a plurality of nanoparticles wherein said electrically conductive organic polymer is selected from combinations of two or more of polyanilines, polythiophenes and polypyrroles.

26. (Canceled).

27. (Previously Presented). A device according to Claim 25, wherein said electrically conductive polymer is a combination of PANi/PAAMPSA, PANi/PSSA, PEDT/PAAMPSA, PEDT/PSS, PPy/PSSA, and PPy/PAAMPSA, respectively.

28. (Original). A device according to Claim 25, wherein said nanoparticles are inorganic nanoparticles.

29. (Currently Amended). A device according to Claim ~~[[25]]~~ 28, wherein said inorganic nanoparticles are selected from silica, alumina, or electrically semiconductive metal oxides.

30. (Original). A device according to Claim 25, wherein said nanoparticles are organic nanoparticles.

31. (Currently Amended). A device according to Claim ~~[[25]]~~ 30, wherein said organic nanoparticles are selected from colloid-forming polymeric acids.

32. (Original). A device according to Claim 25, wherein said buffer layer has a conductivity less than about 1×10^{-3} S/cm.

33. (Currently Amended). A thin film field effect transistor electrode, comprising a composition comprising an aqueous dispersion of an electrically conductive organic polymer doped with a polymeric acid and a plurality of nanoparticles ~~composition~~, wherein said electrically conductive organic polymer is selected from combinations of two or more of polyanilines, polythiophenes and polypyrroles.

34. (Canceled.)

35. (Original). A thin film field effect transistor electrode according to Claim 33, wherein said nanoparticles are inorganic nanoparticles.

36. (Currently Amended). A thin film field effect transistor electrode according to Claim ~~[[33]]~~ 35, wherein said inorganic particles are metallic nanoparticles.

37. (Currently Amended). A thin film field effect transistor electrode according to Claim ~~[[33]]~~ 36, wherein said metallic nanoparticles are molybdenum nanoparticles.

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38. (Original). A thin film field effect transistor electrode according to Claim 33, wherein said nanoparticles are organic nanoparticles.

39. (Currently Amended). A thin film field effect transistor electrode according to Claim ~~[[33]]~~ 38, wherein said organic nanoparticles are selected from carbon nanotubes, graphitized carbon particles, and graphitized carbon nano-fibers.

40. (Original). A thin film field effect transistor comprising an electrode according to Claim 33.

41. (Original). A thin film field effect transistor according to Claim 40, wherein said thin film field effect transistor has a conductivity greater than about 10 S/cm.

42. (Canceled).

43. (Original). An electronic device according to Claim 25, wherein the device is selected from photoconductive cells, photoresistors, photoswitches, phototransistors, phototubes, IR detectors, photovoltaic device, solar cells coating materials for memory storage devices, field effect resistance devices, anti-static films, biosensors, electrochromic devices, solid electrolyte capacitors, energy storage devices, and electromagnetic shielding.